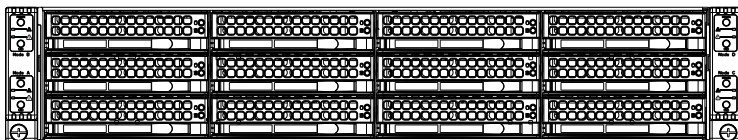# SUPER®

SC827 Chassis Series

SC827H-R1200B   SC827H-R1400B

SC827T-R1200B   SC827T-R1400B

USER'S MANUAL

1.0

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Manual Revision 1.0
Release Date: October 1, 2009

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC827 2U chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC827 2U chassis features a unique and highly-optimized design for multi-note dual processor platforms. The chassis is equipped with 1200W or 1400W Gold Level, high-efficiency power supply for superb power savings. High-performance fans provide ample optimized cooling for the four motherboard nodes and the twelve hot-swappable hard drives offer maximum storage capacity in a 2U form factor.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1 Introduction

The first chapter provides a checklist of the main components included with this chassis, and describes the main features of the SC827 chassis. This chapter also includes contact information.

Chapter 2 System Safety

This chapter lists warnings, precautions, and system safety. You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed before installing and servicing this chassis.

Chapter 3 Chassis Components

Refer here for details on this chassis model including the fans, bays, airflow shields, and other components.

Chapter 4 System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 5 Chassis Setup and Maintenance

Follow the procedures given in this chapter when installing or removing components, or reconfiguring your chassis.

Chapter 6 Rack Installation

Refer to this chapter for detailed information on chassis rack installation. You should follow the procedures given in this chapter when installing, removing or reconfiguring your chassis into a rack environment.

Compatible Backplanes

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A Chassis Cables

Appendix B Power Supply Specifications

Appendix C SAS-827T Backplane Specifications

Appendix D SAS-827B Backplane Specifications

Table of Contents

Notes

Chapter 1

Introduction

1-1   Overview

Supermicro's SC827 (2U Twin^2) chassis is designed to optimize performance per Watt and per dollar with four independent hot-pluggable DP computing nodes efficiently organized into a 2U form factor. Each node provides three 3.5" hard drives for RAID 5 data protection, and is contained in a convenient module to facilitate easy system upgrades, installation and maintenance. The SC827 chassis is equipped with high-efficiency optional 1 + 1 Gold Level redundant power supplies (93%), power-efficient server board and optimized cooling subsystems. The 2U Twin^2 is the best choice for HPC, datacenter and cost-effective blade-type applications.

1-2   Shipping List

Part Numbers

Please visit the following link for the latest shiping lists and part numbers for your particular chassis model http://www.supermicro.com/products/chassis/2U/?chs=827

SC827 Chassis					
Model	**MB Node Hot-Swap Feature**	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC827T-R1200W	No	Dual CPU	12x SAS/SATA	4x LP	1200W Redundant
SC827H-R1200W	Yes	Dual CPU	12x SAS/SATA	4x LP	1200W Redundant
SC827T-R1400W	No	Dual CPU	12x SAS/SATA	4x LP	1400W Redundant
SC827H-R1400W	Yes	Dual CPU	12x SAS/SATA	4x LP	1400W Redundant

1-3   Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-8226-1900

1-4   Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 2

System Safety

2-1   Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in order given should enable you to have your chassis setup and operational within a minimal amount of time. This quick set up assumes that you are an experienced technician, famailiar with common concepts and terminology.

2-2   Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well venilated. Avoid areas where heat, electrical noise and eletromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. When configured, the SC827 chassis includes one power supply.

2-3   Preparing for Setup

The SC827 chassis includes a set of rail assemblies, including mounting brackets and mounting screws you will need to install the systems into the rack. Please read this manual in its entirety before you begin the installation procedure.

2-4   Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC827 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM and floppy drives (not necessary for hot swappable drives). When disconnecting power, you should first power down the system with the operating system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- DVD-ROM laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-5   General Safety Precautions

- Keep the area around the chassis clean and free of clutter.

- Place the chassis top cover and any system components that have been re-moved away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-6   System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- Use a grounded wrist strap designed to prevent static discharge.

- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

- When handling chips or modules, avoid touching their pins.

- Put the serverboard and peripherals back into their antistatic bags when not in use.

- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3

Chassis Components

3-1   Overview

This chapter describes the most common components included with your chassis. Some components listed may not be included or compatible with your particular chassis model. For more information, see the installation instructions detailed later in this manual.

3-2   Components

Chassis

The SC827 chassis includes twelve hot-swappable hard drive bays. For more information, visit our Web site at: http://www.supermicro.com.

Backplane

Each SC827 chassis comes equipped with either a SAS-827B or SAS-827T backplane. For more information regarding compatible backplanes, view the appendices found at the end of this manual.

Fans

The SC827 chassis accepts four system fans. System fans for the SC827 chassis are powered from the motherboards or the HDD backplane. On SC827H model chassis, the two fans on each side are controlled by two motherboards, so that when one of the motherboard nodes is removed, the second motherboard will continue to control both fans. In the SC827T chassis, each fan is controlled by one motherboard, so if a motherboard drawer is removed, the fan associated with that motherboard will not continue to operate.

Mounting Rails

The SC827 includes a set of quick-release rails, and can be placed in a rack for secure storage and use. To setup your rack, follow the step-by-step instructions included in this manual.

Power Supply

Each SC827 chassis model includes a high-efficiency 80 Plus Gold Level power supply, rated at 1200 or 1400 Watts. In the unlikely event your power supply fails, replacement is simple and can be accomplished without tools.

Air Shroud

The SC827 chassis requires mylar air shrouds for each node to direct the airflow where cooling is needed. The air shroud will differ for different motherboards. If using a motherboard which is not the default in the chassis, refer to the optional parts in the Appendix of this manual, or the Supermicro Web site at www.supermicro.com to puchase the proper air shroud.

3-3   Where to get Replacement Components

Although not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors / System Integrators / Resellers. A list of Supermicro Authorized Distributors / System Integrators /Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

Chapter 4

System Interface

4-1   Overview

There are several LEDs on the control panel and on the drive carriers to keep you constantly informed of the overall status of the system. SC827 models include four control panels on the handles of the chassis which control each of the systems.

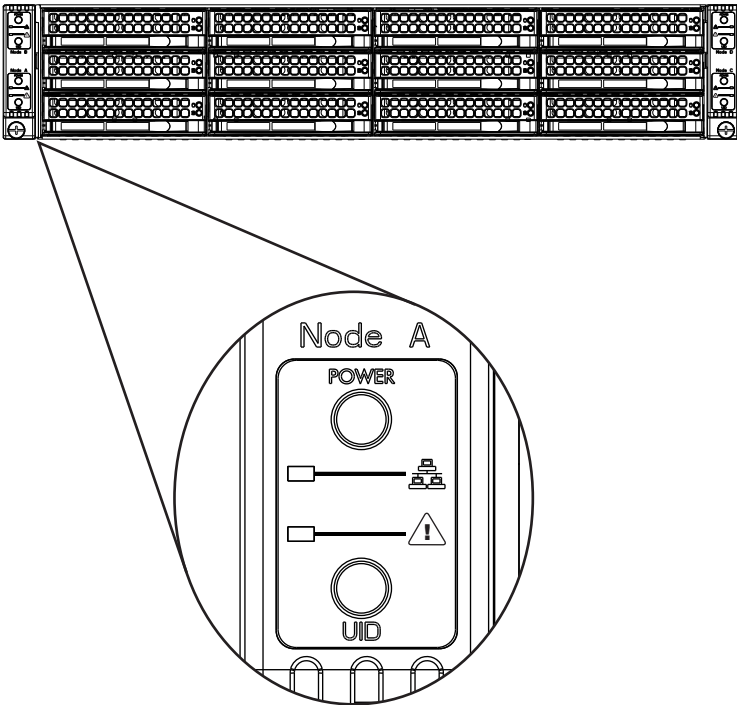This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

Figure 4-1: Chassis Control Panel

4-2   Control Panel Buttons

POWER

- Power: The main power button on each of the four control panels is used to apply or remove power from the power supply to each of the four systems in the chassis. Turning off system power with this button removes the main power, but keeps standby power supplied to the system. Therefore, you must unplug system before servicing. The poer button has a built-in LED which will turn green when the power is on.

UID

- UID: When used with a UID compatible motherboard, the UID button is used to turn on or off the blue light function of the LED. This is built into the front side of the UID button and at the rear end of each motherboard node, for those motherboards which support it. Once the blue light is activated, the unit can be easily located in very large racks and server banks.

4-3   Control Panel LEDs

The four control panels are located on the front handle of the SC827 chassis. Each control panel has two additional LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

⚠

- Alert: This LED is illuminated when an alert condition occurs.
  A solid red light indicates an overheat condition in the system.
  A flashing red light which flashes in one second intervals indicates a fan failure.
  A flashing red light which flashes in four second interfals indicates a power failure. When notified of an alert, check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers and air shrouds are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on

as long as the temperature is too high or a fan does not function properly.

- NIC: Indicates network activity on either LAN1 or LAN2 when flashing
.

4-4   Drive Carrier LEDs

The SC827 chassis uses SAS/SATA drives.

SAS/SATA Drives

Each SAS/SATA drive carrier has two LEDs.

- Blue: Each Serial ATA drive carrier has a blue LED. When illuminated, this blue LED (on the front of the SATA drive carrier) indicates drive activity. A connection to the SATA backplane enables this LED to blink on and off when that particular drive is being accessed.

- Red: The red LED to indicate an SAS/SATA drive failure. If one of the SAS/SATA drives fail, you should be notified by your system management software.

SCSI Drives

This chassis does not support SCSI drives at this time.

Notes

Chapter 5

Chassis Setup and Maintenance

5-1   Overview

This chapter covers the steps required to install components and perform mainte-
nance on the chassis. The only tool you will need to install components and perform
maintenance is a Phillips screwdriver.

- Overview

- Chassis Cover

- Installing and Removing Hard Drives

- Removing and Installing the Backplane

- Installing the Motherboard

- Add-on Card/Expansion Card Setup

- Adapter Card Replacement

- Installing the Air Shrouds

- Checking the Chassis the Air Flow

**Review the warnings and precautions listed in the manual be-
fore setting up or servicing this chassis. These include infor-
mation in Chapter 2: System Safety and the warning/precau-
tions listed in the setup instructions.**
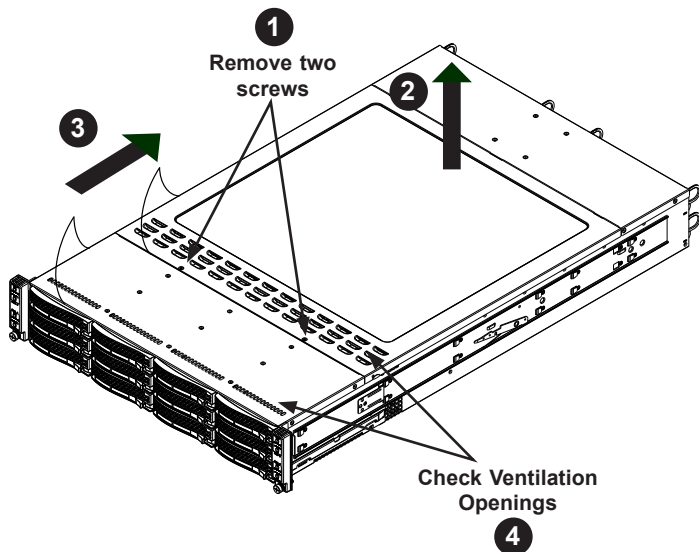
5-2   Chassis Cover

Figure 5-1: Removing the Chassis Cover

Before operating the SC827 chassis for the first time, it is important to remove the protective film covering the top of the chassis, in order to allow for proper ventilation and cooling.

Removing the Chassis Cover and Protective Film

1. Remove the two screws which secure the top cover onto the chassis as shown above.

2. Lift the top cover up and off the chassis.

3. Peel off the protective film covering the top cover and the top of the chassis

4. Check that all ventilation openings on the top cover and the top of the chassis are clear and unobstructed.

![warning icon] **Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.**

5-3   Installing and Removing Hard Drives

The SC827 chassis contains four individual motherboards in separate node drawers. Each motherboard node controls a set of three hard drives. Note that if a motherboard node drawer is pulled out of the chassis, the hard drives associated with that node will power down as well.

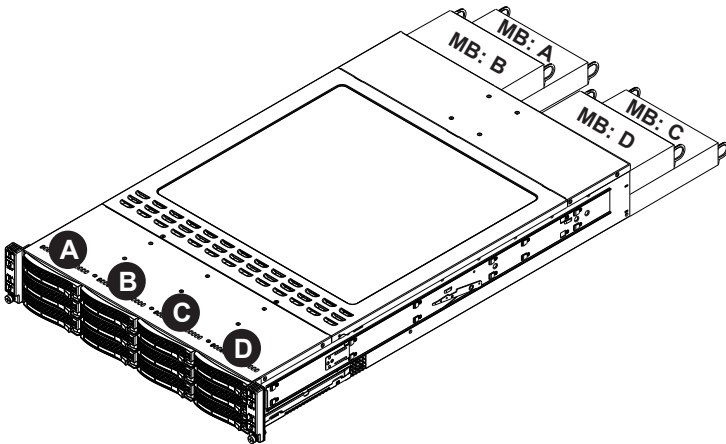| Motherboard Drawer Locations in the Chassis	
Motherboard B Controls HDDs B1, B2 and B3	Motherboard D Controls HDDs D1, D2 and D3
Motherboard A Controls HDDs A1, A2 and A3	Motherboard C Controls HDDs C1, C2 and C3

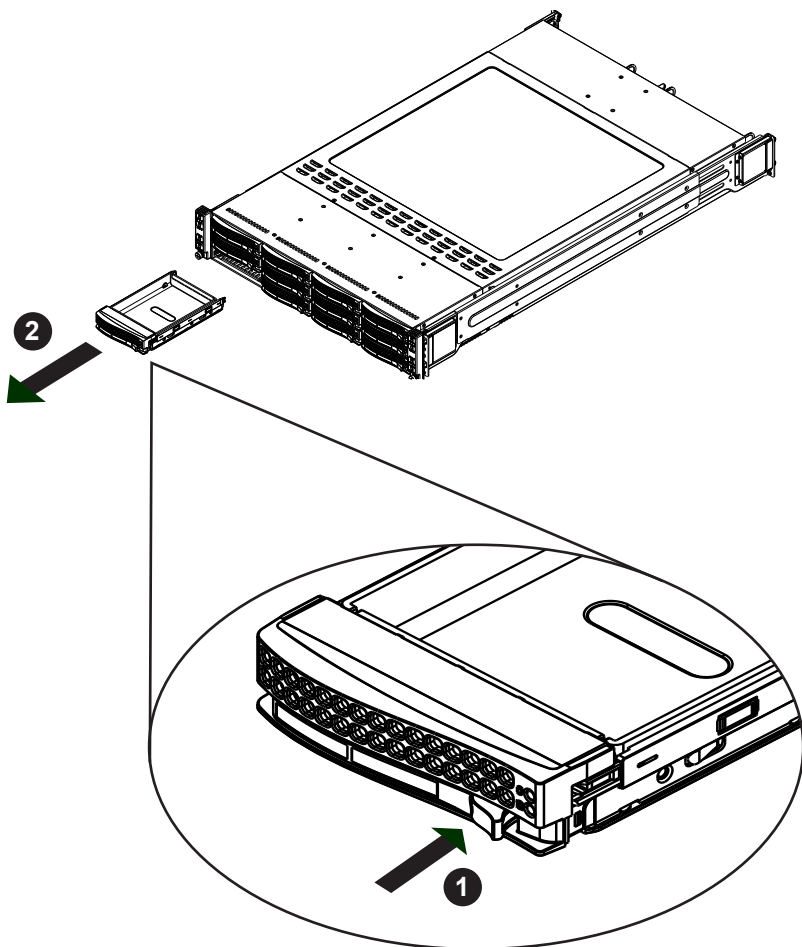**Figure 5-2: Hard Drives and the Corresponding Motherboards**

Figure 5-3: Removing a Hard Drive Tray

Removing Hard Drive Trays from the Chassis

1. Press the release button on the drive tray. This extends the drive bay handle.
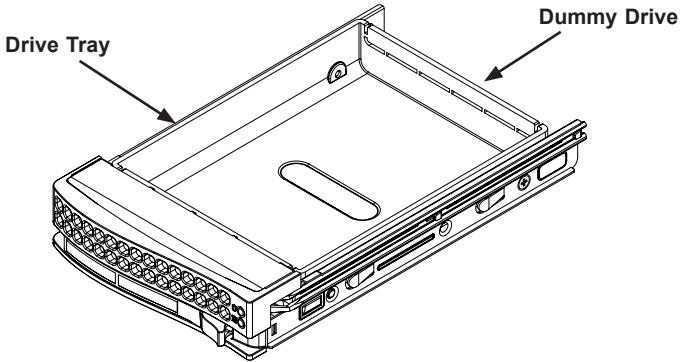
2. Use the handle to pull the drive out of the chassis.

Figure 5-4: Chassis Drive Tray

The drives are mounted in drive trays to simplify their installation and removal from the chassis. These trays also help promote proper airflow for the drive bays.

Warning: Except for short periods of time while swapping hard drives, do not operate the server with the hard drives bays empty.
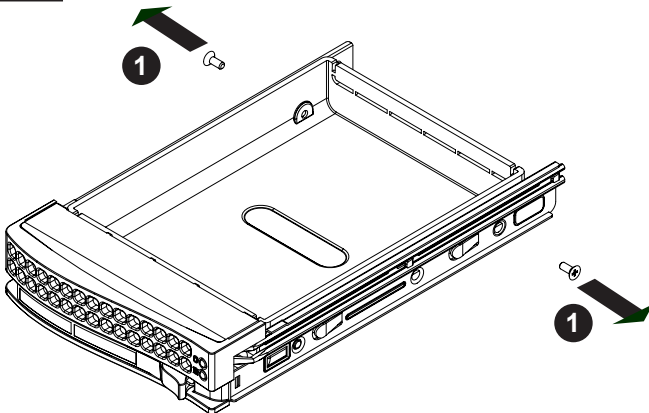
Figure 5-5: Removing Dummy Drive from Tray

Installing a Drive into the Hard Drive Tray

1. Remove the screws (2) holding the drive to the tray.

2. Remove the drive from the tray.

SAS or SATA Hard Drive
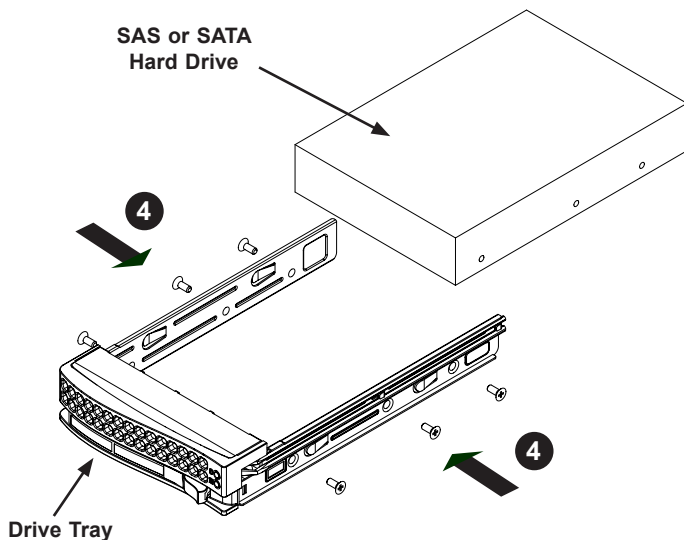
4

4

Drive Tray

Figure 5-6: Removing Hard Drive

3. Install a new drive into the tray with the printed circuit board side facing down so that the mounting holes align with those in the carrier.

4. Secure the hard drive by tightening all six (6) screws.

5. Use the open handle to replace the drive tray into the chassis. Make sure the close the drive tray handle.

5-4   Removing and Installing the Backplane

The SC827 chassis backplane is located behind the hard drives and in front of the front system fans. Although backplane failure rarely occurs, in the event of a backplane failure, follow the instructions below.

Removing the Backplane

Removing the Backplane from the Chassis

1.   Power down and unplug the system from any power source.

2.   Remove the chassis cover.

3.   Disconnect the cabling to the backplane.

4.   Remove all of the hard drive trays from the front of the chassis.

5.   Remove the five upper screws at the top of the backplane and the screw from the side of the chassis, as indicated by the arrows below.
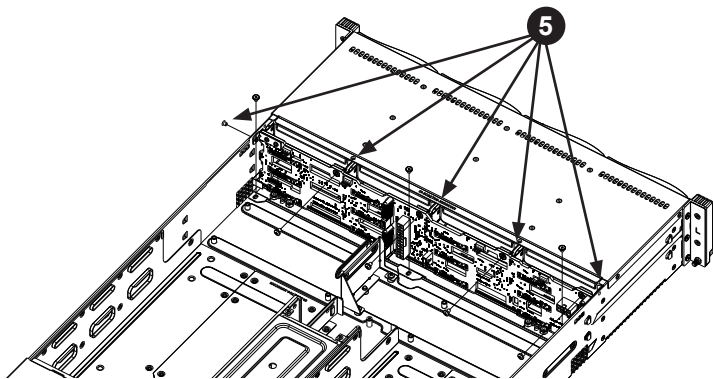

Figure 5-7: Removing the Screws at the Top of the Backplane

6. Loosen the three screws in the spring bar, located on the floor of the chassis, indicated by the arrows below.
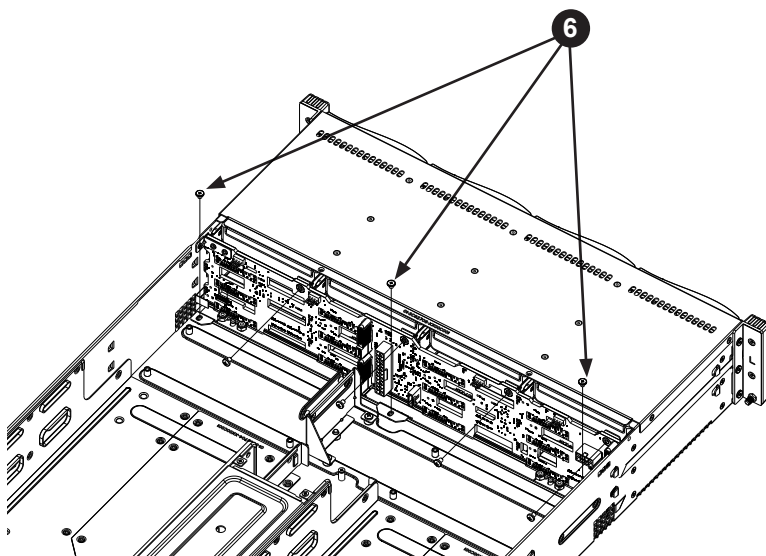

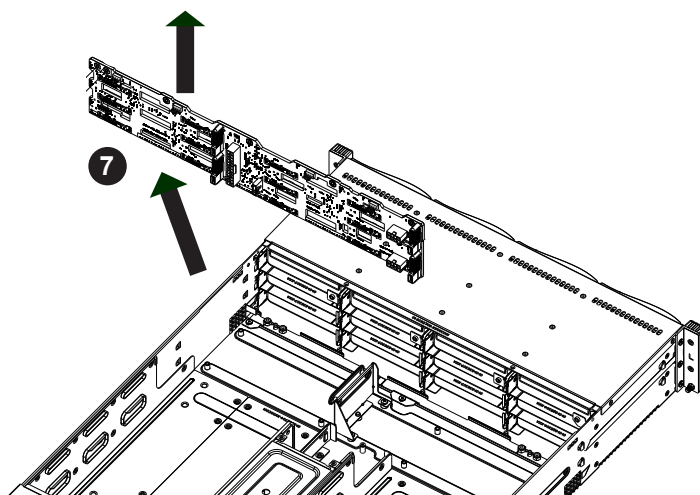**Figure 5-8: Loosening the Spring Bar Screws in the Floor of the Chassis**

Figure 5-9: Removing the Backplane from the Chassis

7. Gently ease the backplane up and out of the chassis at a slight angle.

Installing the Backplane

Installing the Backplane into the Chassis

1. Ensure that all of the hard drive trays have been removed from the bays in the front of the chassis and that the spring bar has been loosened as directed in the previous section.

2. Secure the side mounting bracket to the backplane with the two screws provided.

3. Slide the backplane into the chassis at a slight angle, pushing it up against the side of the chassis.

4. Ease the backplane forward, against the front of the chassis. This will aid in the alignment of the mounting holes.

5. Align the mounting holes in the backplane with the holes in the chassis. Re-place the four screws at the top of the backplane and the screw on the side of the chassis.

6. Adjust the spring bar, then tighten the spring bar screws in the floor of the chassis.

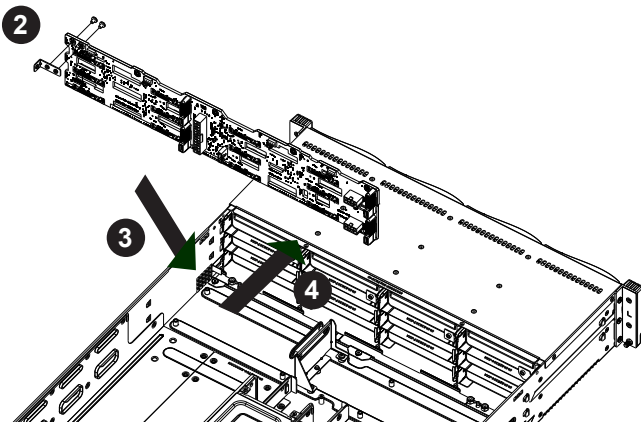7. Reconnect all cables and return the hard drive trays to their bays in the front of the chassis.

Figure 5-10: Installing the Backplane

5-5   Installing the Motherboard
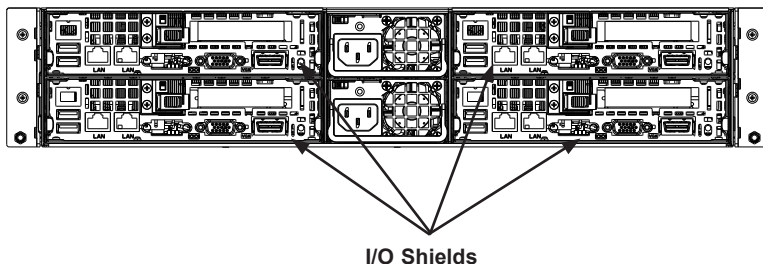

I/O Shields

Figure 5-11: I/O Shield Placement

Compatible Motherboards

Most Supermicro Twin series motherboards are compatible with the SC827 chassis. For the most up-to-date information on compatible motherboards and other parts, visit the Supermicro Web site at www.supermicro.com.

Hot-swappable motherboards feature different adapter cards, depending upon the motherboard. Adapter cards are optional and are not included with the chassis. For information on ordering adapter cards, see the appendix of this manual or visit the Supermicro Web site at www.supermicro.com.

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC827 chassis includes permanent standoffs in locations used by the motherboards. These standoffs accept the rounded Phillips head screws included in the SC827 accessories packaging.

Some motherboards require additional screws for heatsinks, general components and/or non-standard security. Optional standoffs are used for these mother-boards.

To use an optional standoff, you must place a hexagon screw through the bottom the chassis and secure the screw with the hexagonal nut (rounded side up).

Depending upon the configuration of the motherboard being used, it is also pos-sible that some of the optional standoffs which are pre-installed in the chassis, may need to be removed.
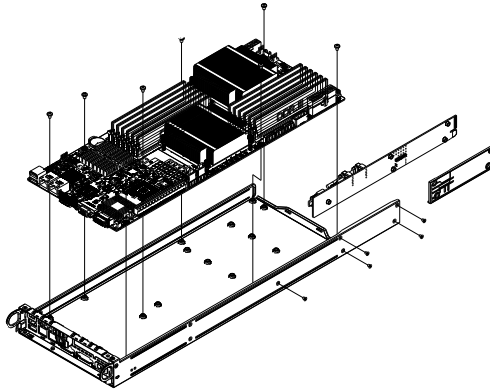
Figure 5-12: Installing the Motherboard in the Motherboard Node Drawer
Installing the Motherboard

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, precautions, and cable connections.

2. Pull the motherboard node drawer out of the back of the chassis.

3. Remove the add-on card brackets:
   3a. Remove screw securing the add-on card bracket to the back of the node drawer.
   3b. Lift the bracket out of the node drawer.

4. Lay the motherboard in the node drawer aligning the standoffs with the motherboard.

5. Secure the motherboard to the node drawer using the rounded, Phillips head screws included for this purpose.

6. Install the adapter card associated with the motherboard if the chassis is a hot-swappable version. Refer to the next section for instructions on installing the adapter card

7. Secure the CPU(s), heatsinks, and other components to the motherboard as described in the motherboard documentation.

8. Connect the cables between the motherboard, backplane, chassis, front panel, and power supply, as needed. Also, fans may be temporarily removed to allow access to the backplane ports.

9. Replace the add-on card bracket and secure the bracket with a screw.

10. Repeat steps 3 - 5 for the remaining nodes.

5-6 Installing and Replacing Adapter Cards

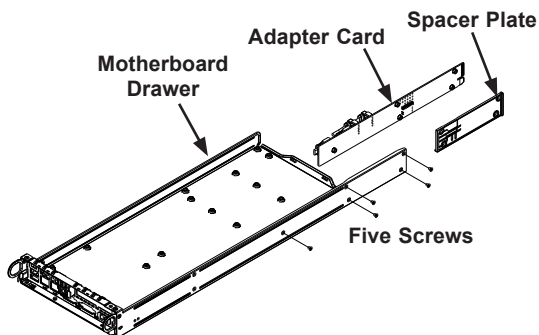Adapter cards provide hot-swappable functionality to the chassis.

Figure 5-13: Adapter Card Installation

Removing the Adapter Card

1. Remove the motherboard drawer from the chassis.

2. Disconnect the wiring, connecting the adapter card to the motherboard if any is present.

3. Remove the five screws securing the adapter card and the spacer plate to the drawer and set them aside for later use.

4. Remove the adapter card and spacer plate from the motherboard drawer.

5. Set the spacer plate aside for later use.

Installing the Adapter Card

1. Make sure the motherboard has been installed properly in the node drawer before installing the adapter card

2. Place the adapter card and spacer plate in the motherboard drawer, aligning the holes in the spacer and the adapter card with the holes in the motherboard drawer.

3. Secure the adapter card and spacer plate to the motherboard drawer, using the five M3 flathead screws which were previously set aside.

4. Reconnect the wiring from the motherboard to the adapter card if necessary.

5. Return the motherboard drawer to the closed position in the chassis.

Add-on Card/Expansion Slot Setup

The SC827 chassis supports one low-profile expansion slot for each node, for a total of four slots in the chassis. To install a low-profile PCI card, follow the instructions below.
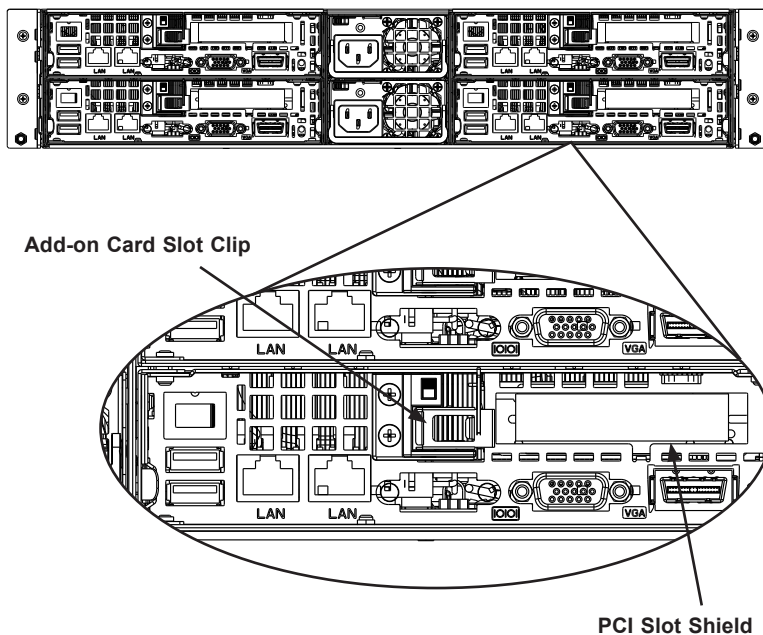

Add-on Card Slot Clip

PCI Slot Shield

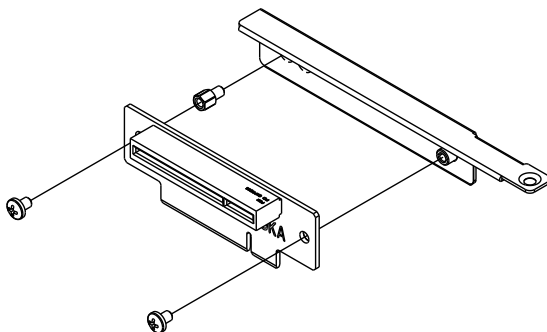**Figure 5-14: I/O Shield Configuration**

Figure 5-15: Installing the Riser Card

Installing the Riser Card

Installing the Riser Card

1. Disconnect the power supply and lay the chassis on a flat surface.

2. Pull the motherboard node drawer from the chassis.

3. Remove the add-on card bracket.
   3a. Remove the screw securing the add-on bracket to the back of the drawer.
   3b. Lift the bracket out of the motherboard node drawer.

4. Align the riser card mounting hole to the bracket standoff and secure the riser card to the bracket using the two screws included in the accessory box.

5. Inser the riser card along with the riser bracket into the motherboard.

6. Secure the riser bracket to the motherboard node drawer's rear window.
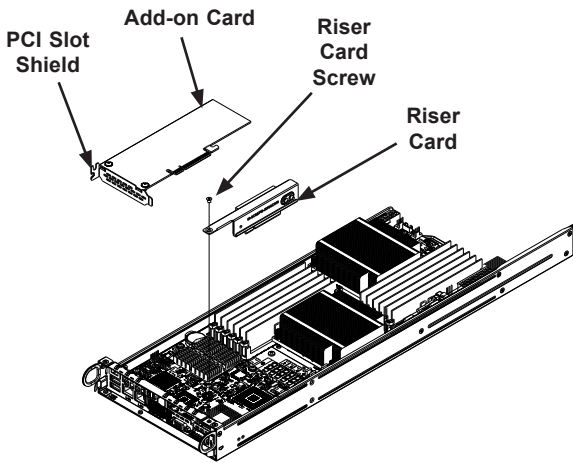
Figure 5-16: Installing the Add-On Card

Installing Add-on Cards

1. Disconnect the power supply, lay the chassis on a flat surface, and open the chassis cover.

2. Pull out the motherboard node drawer from the chassis.

3. Pull open the add-on card slot clip in the rear of the motherboard node drawer.

4. Remove the PCI slot shield.

5. Place the add-on card into the motherboard node drawer.

6. Slide the add-on card into the rear riser card slot and fit the add-on card bracket with the opening in the rear of the motherboard node drawer.

7. Close the add-on card slot clip.

5-7   Installing the Air Shrouds

Air Shrouds

Air shrouds concentrate airflow to maximize fan efficiency. The SC827 chassis requires air shrouds for each motherboard node. Air shrouds vary depending upon the motherboard used. See the illustrations below.

Installing an Air Shroud

1. Make sure that the motherboard adapter card (if any) and all components are properly installed in each motherboard node.

2. Place the first air shroud over the motherboard, as shown below. The air shroud sits behind the system fans and goes over the top of the motherboard and its components.

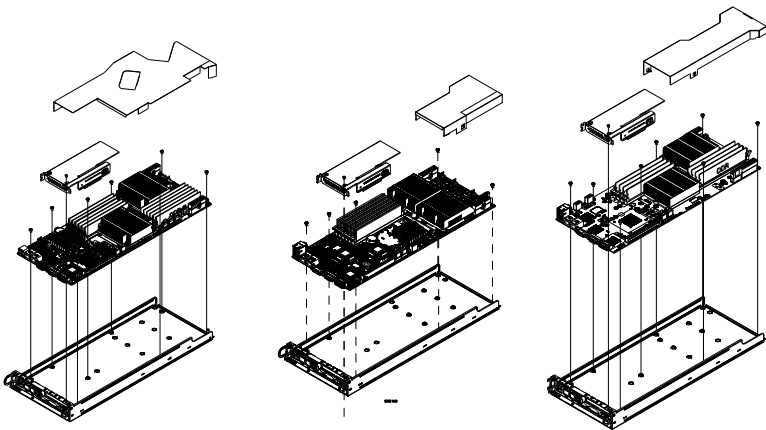3. Repeat the procedure for the remaining three motherboard nodes.

Figure 5-17: Installing the Air Shroud with Different Motherboards

5-8 Checking the Airflow

Checking Airflow

1. Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.

2. Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.

3. Make sure no wires or foreign objects obstruct airflow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

4. The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons.

Installation Complete

In most cases, the chassis power supply and fans are pre-installed. If you need to install fans or power supplies, continue to the Systems Fan and Power Supply sections of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

5-9   System Fans

Four fans provide cooling for the chassis. These fans circulate air through the chassis as a means of lowering the chassis internal temperature. The SC827 system fans are easy to change modules. There is no need to uninstall any other parts inside the system when replacing fans, and no tools are required for installation.

Optional Fan Configurations

The SC827H model chassis is designed so that the default configuration of the system is for each motherboard to control two fans. Each motherboard node in the chassis is connected to the backplane through the adapter card, mounted in the motherboard node drawer. In the event that one of the motherboard drawers is removed, then the remaining motherboard will operate both fans.

The SC827T model chassis has a default configuration with one fan wired directly to each motherboard. In the event that one of the motherboard drawers is removed, then the fan associated with that motherboard will not function until the drawer is replaced. If multiple controls are desired in the SC827T, an optional cable must be purchased separately to connect from the backplane to each motherboard node.

| Fan Configurations Options |
|---|
| SC827T Default Configuration |
| Fan A wired directly to Node A |
| Fan B wired directly to Node B |
| Fan C wired directly to Node C |
| Fan D wired directly to Node D |
| SC827T Optional Hot-Swappable Configuration (Requires optional cable) |
| Fans A and B connected to backplane, backplane cabled to Nodes A and B |
| Fans A and B connected to backplane, backplane cabled to Nodes A and B |
| SC827H Hot-Swappable Default Configuration |
| Fans A and B connected to backplane, backplane connected to Node A and B by adapter card |
| Fans C and D connected to backplane, backplane connected to Nodes A and B by adapter card |
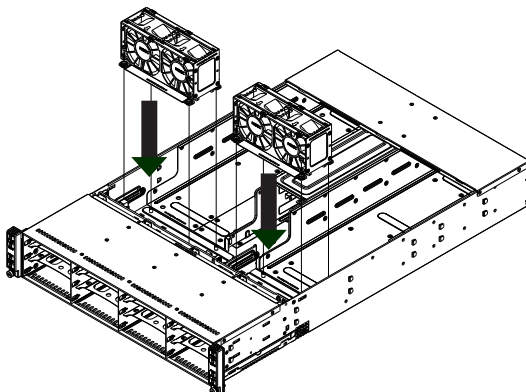
Figure 5-18: System Fan Placement

Changing a System Fan

1. If necessary, open the chassis while the power is running to determine which fan has failed. (Never run the server for an extended period of time with the chassis cover open.)

2. Remove the failed fan's power cord from the backplane.

3. Lift the fan housing up and out of the chassis.

4. Push the fan up from the bottom and out of the top of the housing.

5. Place the replacement fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

6. Put the fan back into the chassis and reconnect the cable.

7. Confirm that the fan is working properly before replacing the chassis cover.
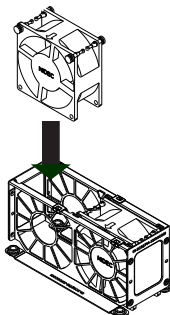

Figure 5-19: Replacing a System Fan in the Fan Housing

5-10 Power Supply

Depending on your chassis model, the SC827 chassis will include a 1200W or 1400W power supply. This power supply is auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Power Supply Replacement

The SC827 chassis utilizes two redundant power supplies. In the unlikely event that the power supply unit needs to be replaced, one power supply can be removed, without powering down the system. Replacement units can be ordered directly from Supermicro (See the contact information in the Preface of this manual).
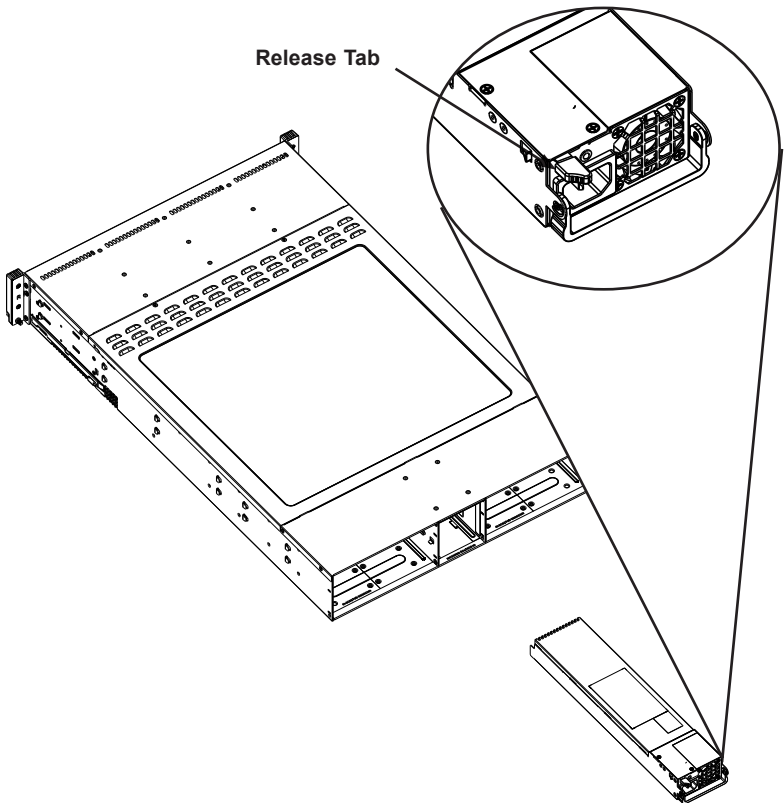
Figure 5-20: Changing the Power Supply

Changing the Power Supply

1. Power down all four nodes and unplug the power cord. (Not necessary with redundant power supplies)

2. Unplug the AC power cord from the failed power supply.

3. Push the release tab (on the back of the power supply) as illustrated.

4. Pull the power supply out using the handle provided.

5. Push the new power supply module into the power bay until you hear a click.

6. Plug the AC power cord back into the module and power up the nodes.

Chapter 6

Rack Installation

6-1   Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimal amount of time.

6-2   Unpacking the System

You should inspect the box which the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. The system needs to be placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

6-3   Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies and the mounting screws needed for installing the system into the rack. Also included is an optional square hole to round hole converter bracket, for use in racks with round mounting holes. *Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow*.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

Warning!

6-4   Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.

- In single rack installations, stabilizers should be attached to the rack.

- In multiple rack installations, the racks should be coupled together.

- Always make sure that the rack is stable before extending a component from the rack.

- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.

- Determine the placement of each component in the rack *before* you install the rails.

- Install the heaviest server components on the bottom of the rack first, and then work upwards.

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.

- Allow the hot plug hard drives and power supply modules to cool before touching them.

- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

6-5   Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (TMRA).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

6-6   Rack Mounting Instructions

This section provides information on installing the chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly from the instructions provided. You should also refer to the installation instructions that came with the rack unit you are using. **NOTE:** This rail will fit a rack between 26.5" and 36.4" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of three sections: An inner chassis rail which secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis.
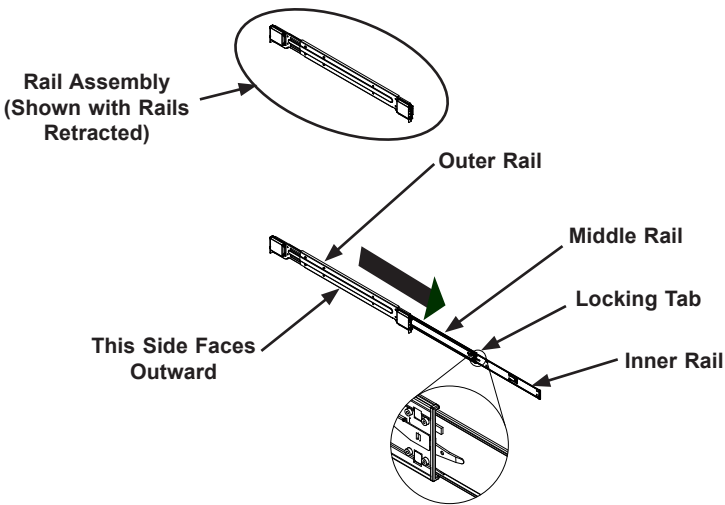

**Figure 6-1: Identifying the Outer Rail, Middle Rail and Inner Rails
(Left Rail Assembly Shown)**

Locking Tabs

Each inner rail has a locking tab. This tab locks the chassis into place when installed and pushed fully into the rack. These tabs also lock the chassis in place when fully extended from the rack. This prevents the server from coming completely out of the rack when when the chassis is pulled out for servicing.

Releasing the Inner Rail

Releasing Inner Rail from the Outer Rails

1. Identify the left and right outer rail assemblies as described on page 5-4.

2. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.

3. Press the locking tab down to release the inner rail.

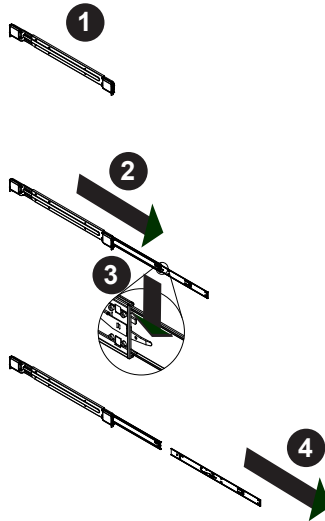4. Repeat steps 1-3 for the second outer rail.

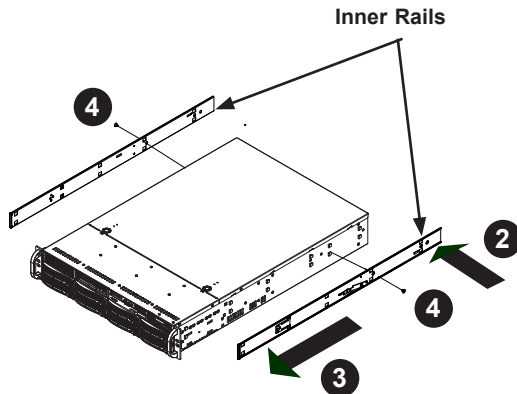**Figure 6-2: Extending and Releasing the Inner Rail**

Inner Rails

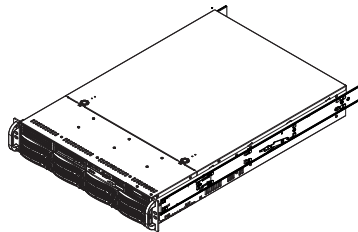**Figure 6-3: Installing the Inner Rails**

Figure 6-4: Inner Rails Installed on the Chassis
(The chassis above are an example only. Actual chassis may differ slightly)

Installing The Inner Rails on the Chassis

Installing the Inner Rails

1. Confirm that the left and right inner rails have been correctly identified.

2.   Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.

3. Slide the inner rail forward toward the front of the chassis until the rail clicks into the locked position, which secures the inner rail to the chassis.

4. Secure the inner rail to the chassis with the screws provided.

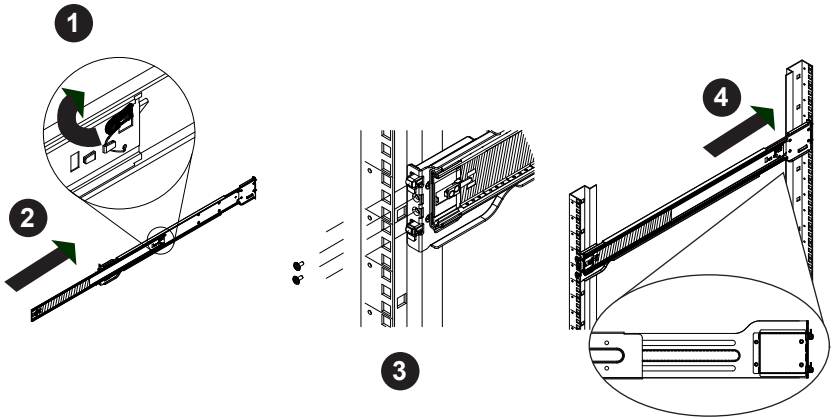5. Repeat steps 1 through 4 above for the other inner rail.

Figure 6-5: Extending and Releasing the Outer Rails

Installing the Outer Rails on the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.

2. Push the middle rail back into the outer rail.

3. Hang the hooks of the front of the outer rail onto the slots on the front of the rack. If necessary, use screws to secure the outer rails to the rack, as illustrated above.

4. Pull out the rear of the outer rail, adjusting the length until it fits within the posts of the rack.

5. Hang the hooks of the rear portion of the outer rail onto the slots on the rear of the rack. If necessary, use screws to secure the rear of the outer rail to the rear of the rack.

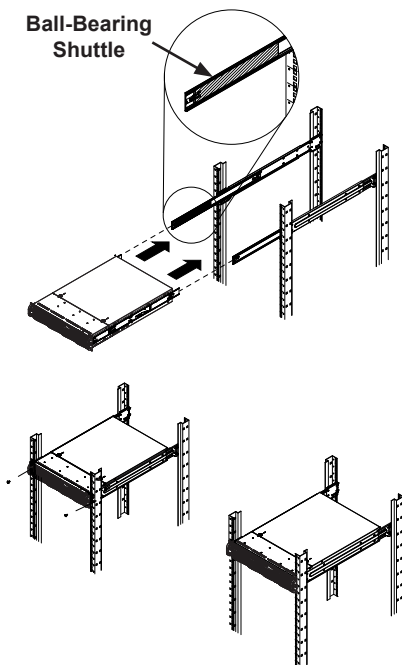6. Repeat steps 1-5 for the remaining outer rail.

Figure 6-6: Installing into a Rack

Standard Chassis Installation

Installing the Chassis into a Rack

1. Confirm that the inner rails are properly installed on the chassis.

2. Confirm that the outer rails are correctly installed on the rack.

3. Pull the middle rail out from the front of the outer rail and make sure that the ball-bearing shuttle is at the front locking position of the middle rail.

4. Align the chassis inner rails with the front of the middle rails.

5. Slide the inner rails on the chassis into the middle rails, keeping the pressure even on both sides, until the locking tab of the inner rail clicks into the front of the middle rail, locking the chassis into the fully extended position.

6. Depress the locking tabs of both sides at the same time and push the chassis all the way into the rear of the rack.

7. If necessary for security purposes, use screws to secure the chassis handles to the front of the rack.

Optional Quick Installation Method

The following quick installation method may be used to install the chassis onto a rack.

Installing the Chassis into a Rack

1. Install the whole rail assembly onto the rack as described on page X-7.

2. Release the inner rail without retracting the middle rail.

3. Install the inner rails on the chassis as previously described on page X-6.

4. Install the chassis onto the middle rail as described in the previous section.

Notes

Appendix A

Cables, Screws,
and other Accessories

A-1 Overview

This appendix lists optional parts which need to be ordered when the customer is assembling their own chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Compatibility and Optional Accessories List

	SC827T chassis (Wire Version)	SC827H chassis (Hot-Swappable Version)
X8DTT (non-H version)	Air shroud: MCP-310-82701-0B	Adaptor card: BPN-827ADP-X8 Air shroud: MCP-310-82706-0B Cable: CBL-0317L, CBL-0318L Cable: CBL-0319L, CBL-0320L Cable: CBL-0321L
X8DTT-H	Not supported	Adaptor card: BPN-827ADP-X8-H Air shroud: MCP-310-82706-0B
X8DTT-H+	Not supported	Currently not supported
H8DMT (8 DIMMs)	Air shroud: MCP-310-82703-0B	Adaptor card: BPN-827ADP-H8 Air shroud: MCP-310-82703-0B Cable: CBL-0151L, CBL-0317L Cable: CBL-0320L, CBL-0323L
H8DMT+ (16 DIMMs)	Not supported	Not supported
X7DCT	Air shroud: MCP-310-82702-0B	Not supported
X7DWT/X7DBT	Not supported	Not supported
X7SBT	Not supported	Not supported

A-5   Chassis Screws

The chassis and accessory box includes all of the screws needed to setup your chassis. This section includes descriptions of the most common screws used. Your chassis may not require all of the parts listed.

M/B

Pan head
6-32 x 5 mm
[0.197]

HARD DRIVE

Flat head
6-32 x 5 mm
[0.197]

DVD-ROM, CD-ROM, and FLOPPY DRIVE

Pan head
6-32 x 5 mm
[0.197]

Flat head
6-32 x 5 mm
[0.197]

Round head
3 x 5 mm
[0.197]

Round head
2.6 x 5 mm
[0.197]

RAIL

Flat head
M4 x 4 mm
[0.157]

Round head
M4 x 4 mm
[0.157]

Flat head
M5 x 12 mm[0.472]

Washer for M5

M/B STANDOFFS

M/B standoff
6-32 to 6-32

M/B (CPU) standoff
M5 to 6-32

Thumb screw
6-32 x 5 mm [0.197]

Appendix B

SC827 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

SC827H-R1200B, SC827T-R1200B	
	1200W
MFR Part #	PWS-1K21P-1R
Rated AC Voltage	100 - 140V, 50 - 60HZ, 8 - 11.5 Amp 180 - 240V, 50 - 60Hz, 5.5 - 8 Amp
DC Output +12V	1000W, 83 Amp @ 100-140V 1200W, 100 Amp @ 180-240V 5Vsb: 4A
DC Output with PDB	+5V: 30 Amp +3.3V: 24 Amp -12V: 0.6 Amp
Certification	80 PLUS Gold Certified

SC827H-R1400B, SC827T-R1400B	
	1400W
MFR Part #	PWS-1K41P-1R
AC Input	1100W: 100 - 140V, 50 - 60Hz, 9.5 - 13.5 Amp 1400W: 180 - 240V, 50 - 60Hz, 7.0 - 9.5 Amp
DC Output +5 Standby	4 Amp
DC Output +12V	91 Amp @ 100-140V 116 Amp @ 180-240V
With Distributor	+5V: 30 Amp +3.3V: 24 Amp -12V: 0.6 Amp

Notes

Appendix C

SAS-827T Safety Guidelines

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

C-1   ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing a component from the antistatic bag.

- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

- When handling chips or modules, avoid touching their pins.

- Put the card and peripherals back into their antistatic bags when not in use.

C-2   General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the SAS-827T backplane.

- Disconnect the power cable before installing or removing any cables from the SAS-827T backplane.

- Make sure that the SAS-827T backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-3   An Important Note to Users

- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

C-4   Introduction to the SAS-827T Backplane

The SAS-827T backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-827T Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Connector, Jumper and Pin Definitions
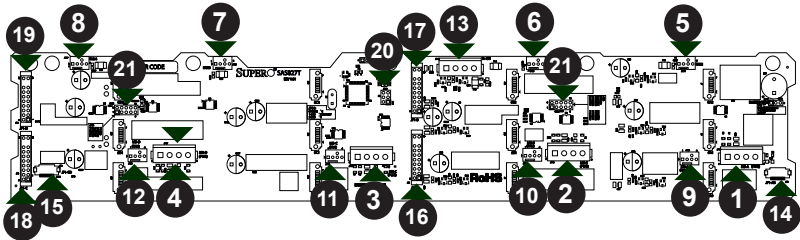
C-5   Front Connectors and Jumpers

Figure C-1: Front Connectors

Front Connectors

1. MB Power Connector: JP10: MB-A

2. MB Power Connector: JP13: MB-B

3. MB Power Connector: JP46: MB-C

4. MB Power Connector: JP47: MB-D

5. Chassis Fan Connector: Fan1 JP54

6. Chassis Fan Connector: Fan2 JP55

7. Chassis Fan Connector: Fan3 JP56

8. Chassis Fan Connector Fan4 JP57

9. MB Fan Connector: MB-A: JP58

10. MB Fan Connector: MB-B: JP59

11. MB Fan Connector: MB-C: JP60

12. MB Fan Connector: MB-D: JP65

13. Power Supply Connector: JP48

14. Backplane to Front Panel Header: JF1-AB, JF5

15. Backplane to Front Panel Header: JF1-CD, JF6

16. MB Front Panel Connector: JF1-A, JF1

17. MB Front Panel Connector: JF1-B, JF2

18. MB Front Panel Connector JF1-C: JF3

19. MB Front Panel Connector JF1-D: JF4

20. Upgrade Connector:JP69

21. Manufacturer's testing only: JP26 and JP49

Figure C-2: Front SAS Ports

SAS Ports

22. SAS Port #A0: J5
23. SAS Port #A1: J6
24. SAS Port #A2: J7
25. SAS Port #B0: J8
26. SAS Port #B1: J10
27. SAS Port #B2: J12
28. SAS Port #C0: J14

29. SAS Port #C1: J16
30. SAS Port #C2: J22
31. SAS Port #D0: J23
32. SAS Port #D1: J24
33. SAS Port #D2: J25

C-6   Front Connector and Pin Definitions

1. - 4. Motherboard Power Connectors

These connectors, designated JP10, JP13, JP46 and JP47 supply power to each of the four motherboards in the chassis. Use the tables on the right to connect the motherboard power connector on the backplane to the correct motherboard in the chassis.

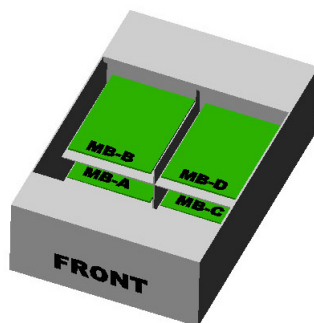| MB Power Connections	
Connector	**Motherboard**
JP10	MB-A
JP13	MB-B
JP46	MB-C
JP47	MB-D

Figure C-3: Motherboard Locations in the Chassis

5. - 8. Chassis Fan Connectors

These connectors, designated JP54, JP55, JP56 and JP57 supply power to the chassis. cooling fans.

9. - 12. Fan Connector Y-Cable
(Optional feature, sold separately)

A Y-cable is used to connect the fan connector from the backplane to the motherboard's fan connectors. These fan connectors, are designated JP58, JP59, JP60 and JP65. Only connect a Y-cable into these four connectors. Never directly connect a fan to these connectors as it may damage both the fans and/or the backplane.
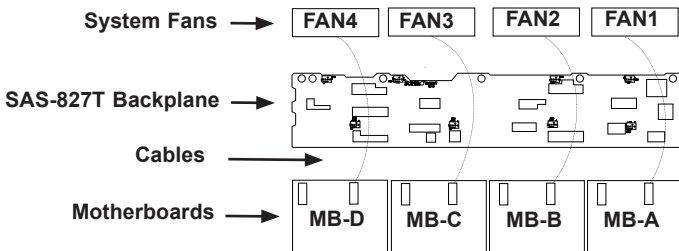

Figure C-4: Default Configuration - Fans Connected Directly to Motherboards
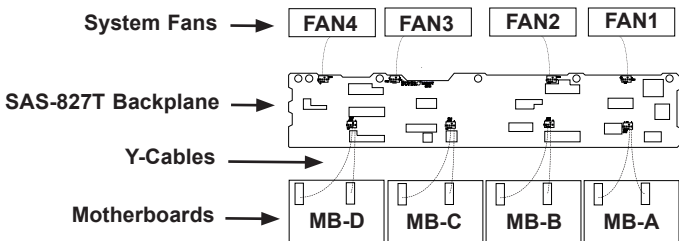

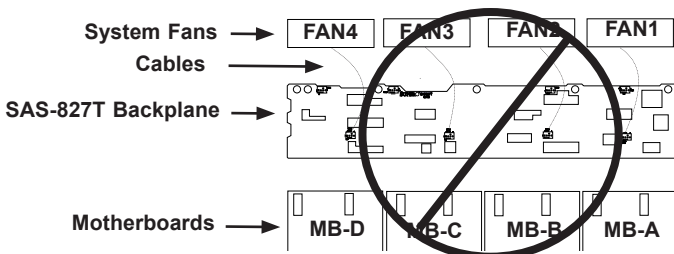**Figure C-5: Optional Configuration - Motherboards to the Fan Connectors**

Figure C-6: Prohibited Configuration

13. Backplane Main Power Connectors

The 4-pin connector, designated JP48 provides power to the backplane. See the table on the right for pin definitions.

Backplane Main Power 4-Pin Connector (JP48)	
Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V_STBY

14. - 15. Backplane to Front Panel Headers

These connectors are designated JF5 and JF6. They connect the backplane to the front LED panels on the chassis. JF5 connects to the LED display panel for motherboards A and B. JF6 connects to the LED display panel for motherboards C and D.

16. - 19. Motherboard to Backplane Connectors

These connectors, designated JF1, JF2, JF3 and JF4 connect the motherboards to the front LED panels on the chassis. JF1 connects to motherboard A. JF2 connects to motherboard B. JF3 connects to motherboard C and JF4 connects to motherboard D. See the table on the previous page to determine the locations of the motherboards within the chassis.

20. Upgrade Connector

The upgrade connector is designated JP69 Upgrade connectors are for manufacturing use only.

21. Manufacturer's Test Connectors

The manufacturer's test connectors are designated JP26 and JP49. These test connectors are for manufacturing use only.

22. - 33. SAS Ports

The SAS-827T backplane is designed with four separate sectors, which support from one to four motherboards indepentdently of each other. The SAS ports are used to connect the SAS drive cables. The 12 ports are designated A0, A1, A2, B0, B1, B2, C0, C1, C2 and D0, D1, D2. Each port is also compatible with SATA drives. Use the table below to determine the SAS port to motherboard configuration that is appropriate for your system.

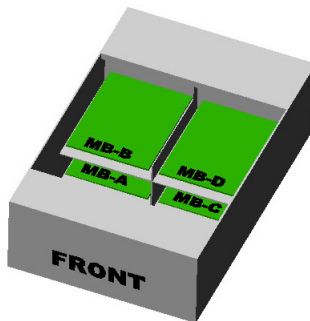| SAS Port to Motherboard Configurations		
Number of Motherboards	**SAS Port Connectors**	**Connect to Motherboard**
Using 1 MB	A0, A1, A2	MB-A
Using 2 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
Using 3 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
	C0, C1, C2	MB-C
Using 4 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
	C0, C1, C2	MB-C
	D0, D1, D2	MB-D

Figure C-7: Motherboard Locations In the Chassis

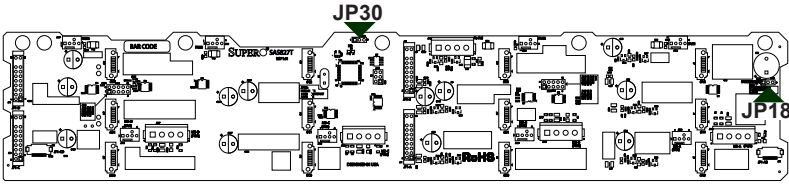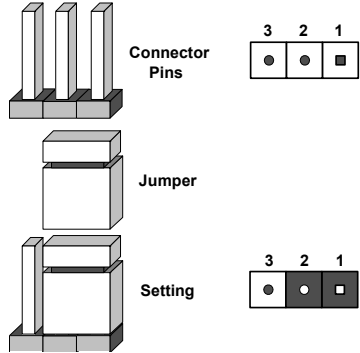# C-7   Front Jumper Locations and Pin Definitions

JP30

Figure C-8: Front Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. **Note:** On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

Connector Pins

Jumper

Setting

Jumper Settings		
Jumper	**Jumper Settings**	**Notes**
JP18	Open: Buzzer disabled 1-2: Buzzer enabled (Default) 2-3: Test setting	*Buzzer reset
JP30	Overheat Settings Open: 45º Celsius 1-2: 50º Celcius (Default) 2-3: 55º Celcius	Backplane overheat settings

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The backplane buzzer alarm is triggered by the following condition:

1. Backplane temperature over 45º, 50º or 55º Celsius, depending upon the overheat setting selected. See the table above for details.
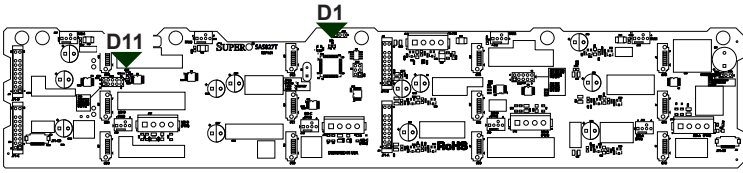
Front LED Indicators

Figure C-9: Front LEDs

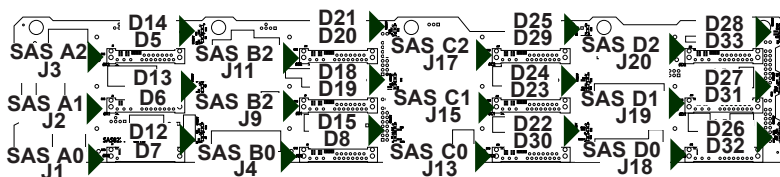| Front Panel LEDs		
LED	**State**	**Specification**
Heartbeat LED: D1	Blinking	Blinking heartbeat indicates backplane activity
Overheat LED: D11	Solid On	On indicates backplane overheat condition

C-8   Rear Connectors and LED Indicators

Figure C-10: Rear Connectors and LEDs

Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #A2	SAS/SATA A2	SAS #C2	SAS/SATA C2
SAS #A1	SAS/SATA A1	SAS #C1	SAS/SATA C1
SAS #A0	SAS/SATA A0	SAS #C0	SAS/SATA C0
SAS #B2	SAS/SATA B2	SAS #D2	SAS/SATA D2
SAS #B1	SAS/SATA B1	SAS #D1	SAS/SATA D1
SAS #B0	SAS/SATA B0	SAS #D0	SAS/SATA D0

Rear LED Indicators	
Rear LED	**Hard Drive Activity**
SAS #A0	D12
SAS #A1	D13
SAS #A2	D14
SAS #B0	D15
SAS #B1	D18
SAS #B2	D21
SAS #C0	D22
SAS #C1	D24
SAS #C2	D25
SAS #D0	D26
SAS #D1	D27
SAS #D2	D28

Appendix D

SAS-827B Backplane Specifications

To avoid personal injury and property damage, carefully follow all the safety steps listed below when accessing your system or handling the components.

D-1   ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing a component from the antistatic bag.

- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

- When handling chips or modules, avoid touching their pins.

- Put the card and peripherals back into their antistatic bags when not in use.

D-2   General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the SAS-827B backplane.

- Disconnect the power cable before installing or removing any cables from the SAS-827B backplane.

- Make sure that the SAS-827B backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

D-3   An Important Note to Users

- All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you have received may or may not look exactly the same as the graphics shown in this manual.

D-4   Introduction to the SAS-827B Backplane

The SAS-827B backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-827B Revision 1.01, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro. com for the latest updates, compatible parts and supported configurations.
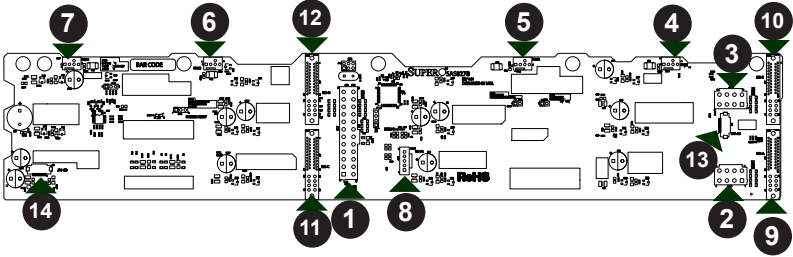
Jumpers and Pin Definitions

D-5   Front Connectors

Figure D-1: Front Connectors

Front Connectors

1. Main Power Connector: JPW1

2. Secondary Power Connector: JPW2

3. Secondary Power Connector: JPW3

4. Chassis Fan Connector: Fan1 JP54

5. Chassis Fan Connector: Fan2 JP55

6. Chassis Fan Connector: Fan3 JP56

7. Chassis Fan Connector Fan4 JP57

8. Power Supply Connector: JPI^{2}C1

9. MB-A hot plug connector: JF1

10. MB-B hot plug connector: JF2

11. MB-C hot plug connector: JF3

12. MB-D hot plug connector: JF4

13. Backplane to front panel connector: JF5

14. Backplane to front pannel connector: JF6

1. - 3. Motherboard Power Connectors

These connectors, designated JPW1, JPW2, and JPW3 supply power the four motherboard nodes in the chassis.

4. - 7. Chassis Fan Connectors

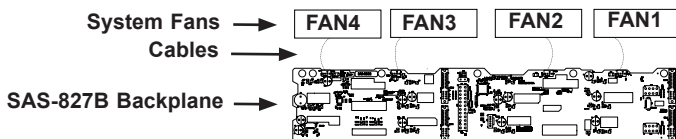These connectors, designated JP54, JP55, JP56 and JP57 supply power to the chassis. cooling fans.

Figure D-2: Default Configuration - Fans Connected Directly to the Backplane

8. Power Supply Connector

The 5-pin connector, designated JPI²C1 provides power to the SMBUS and power control signals.

9. - 12. Motherboard to Backplane Connectors

These connectors, designated JF1, JF2, JF3 and JF4 connect the motherboards to the backplane on the chassis. JF1 connects to motherboard A. JF2 connects to motherboard B. JF3 connects to motherboard C and JF4 connects to motherboard D. See the table on the previous page to determine the locations of the motherboards within the chassis.

13. - 14. Backplane to Front Panel Headers

These connectors are designated JF5 and JF6. They connect the backplane to the front LED panels on the chassis. JF5 connects to the LED display panel for motherboards A and B. JF6 connects to the LED display panel for motherboards C and D.
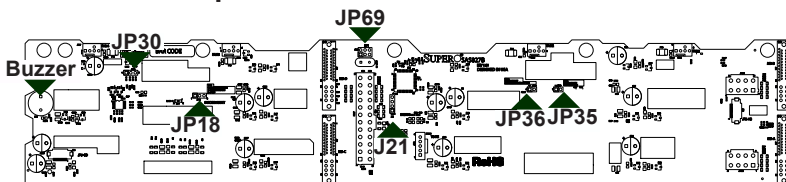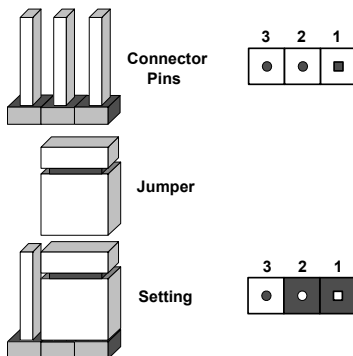
D-6   Front Jumpers and Pin Definitions

Figure D-3: Front Jumpers

Explanation of Jumpers

To modify the operation of the backplane, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. **Note:** On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

Jumper Settings		
Jumper	**Jumper Settings**	**Notes**
JP18	Open: Buzzer disabled 1-2: Buzzer enabled (Default) 2-3: Test setting	*Buzzer reset
JP30	Overheat Settings Open: 45º Celsius 1-2: 50º Celcius (Default) 2-3: 55º Celcius	Backplane overheat settings
JP35	Open: Default Closed: LED test	LED testing
JP36	Open: Default , multiple power button functionality Closed: Single power button functionality	Any power button
JP69		FW upgrade connector

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The backplane buzzer alarm is triggered by the following condition:

1. Backplane temperature over 45º, 50º or 55º Celsius, depending upon the overheat setting selected. See the table above for details.
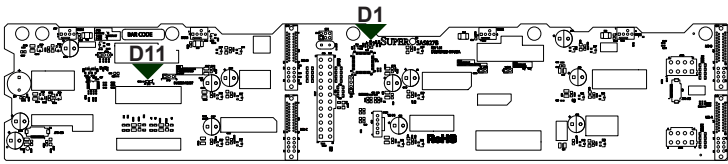
D-7 LED Indicators

Figure D-4: LEDs

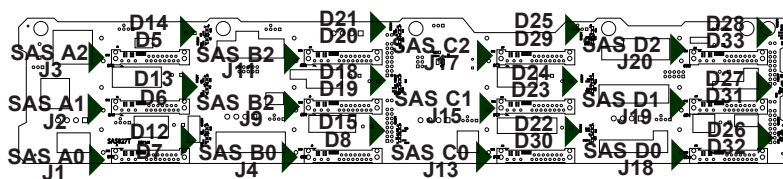| LED Indicators		
LED	**State**	**Specification**
Heartbeat LED: D1	Blinking	Blinking heartbeat indicates backplane activity
Overheat LED: D11	Solid on	Indicates an overheat condition

D-8   Rear Connectors and LED Indicators

Figure D-5: Rear Connectors and LEDs

Rear SAS/SATA Connectors			
Rear Connector	**SAS Drive Number**	**Rear Connector**	**SAS Drive Number**
SAS #A2	SAS/SATA A2	SAS #C2	SAS/SATA C2
SAS #A1	SAS/SATA A1	SAS #C1	SAS/SATA C1
SAS #A0	SAS/SATA A0	SAS #C0	SAS/SATA C0
SAS #B2	SAS/SATA B2	SAS #D2	SAS/SATA D2
SAS #B1	SAS/SATA B1	SAS #D1	SAS/SATA D1
SAS #B0	SAS/SATA B0	SAS #D0	SAS/SATA D0

Rear LED Indicators	
Rear LED	**Hard Drive Activity**
SAS #A0	D12
SAS #A1	D13
SAS #A2	D14
SAS #B0	D15
SAS #B1	D18
SAS #B2	D21
SAS #C0	D22
SAS #C1	D24
SAS #C2	D25
SAS #D0	D26
SAS #D1	D27
SAS #D2	D28

SAS Ports

The SAS-827B backplane is designed with four separate sectors, which support from one to four motherboards indepentdently of each other. The SAS ports are used to connect the SAS drive cables. The 12 ports are designated A0, A1, A2, B0, B1, B2, C0, C1, C2 and D0, D1, D2. Each port is also compatible with SATA drives. Use the table below to determine the SAS port to motherboard configuration that is appropriate for your system.

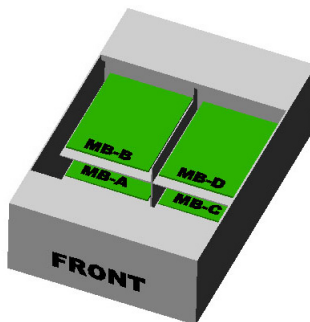| SAS Port to Motherboard Configurations		
Number of Motherboards	SAS Port Connectors	Connect to Motherboard
Using 1 MB	A0, A1, A2	MB-A
Using 2 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
Using 3 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
	C0, C1, C2	MB-C
Using 4 MBs	A0, A1, A2	MB-A
	B0, B1, B2	MB-B
	C0, C1, C2	MB-C
	D0, D1, D2	MB-D

Figure D-6: Motherboard Locations In the Chassis

Disclaimer (cont.)

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